Cell 1

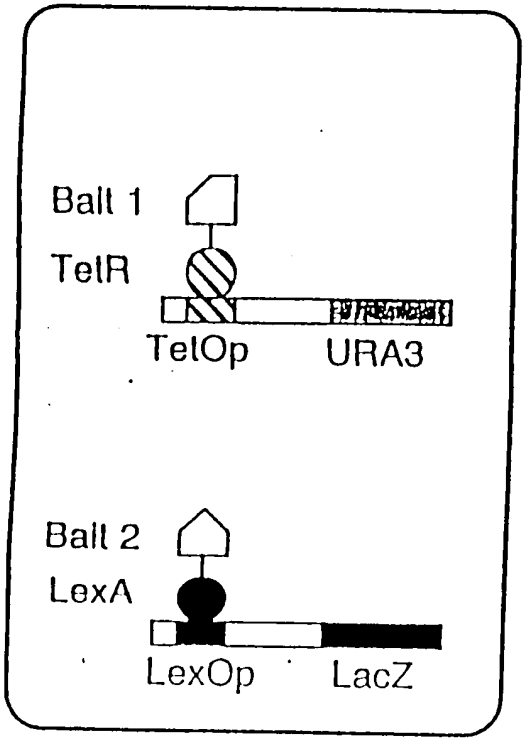

FIG. 1A

Cell 2

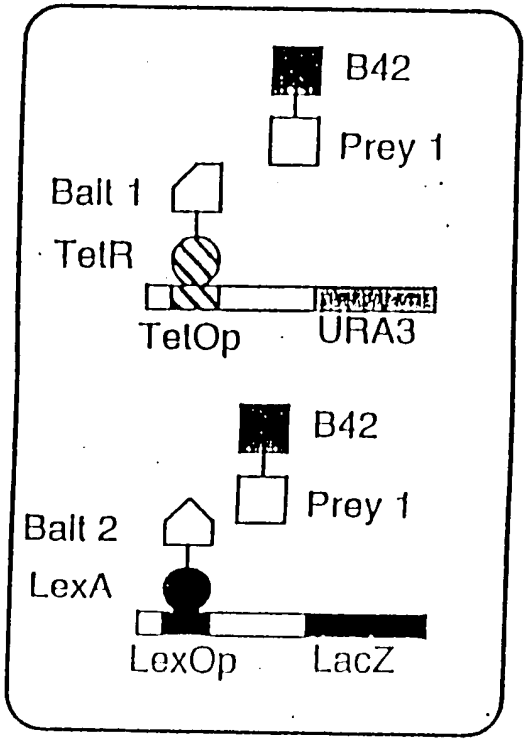

FIG. 1B

Cell 3

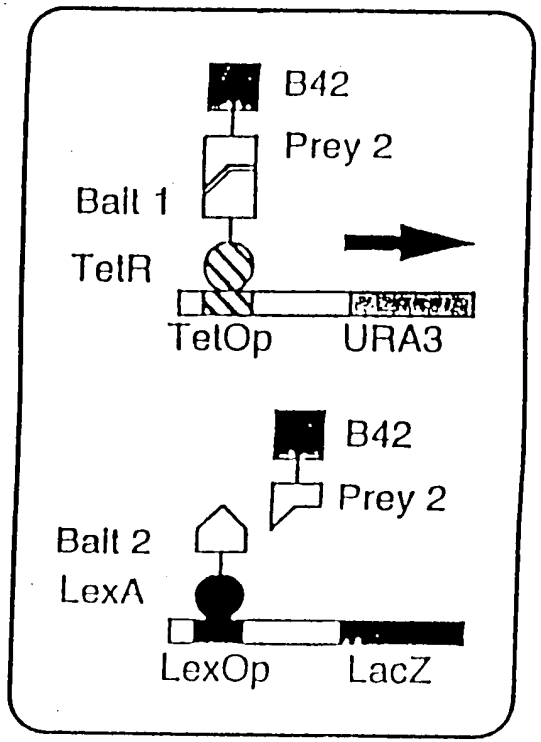

FIG. 1C

Baits	Prey	Reporter	Reporter Output	Logical Relationship
			X-Gal Glu / URA- Glu | X-Gal Gal / URA- Gal	
LexA-hSos1	B42-Ras B42	LexOp-LacZ		
TetR-c-Raf1	B42-Ras B42	TetOp-URA3		And
LexA-Max	B42-c-Raf1 B42-Mxi1	LexOp-LacZ		Ls1
TetR-RasV12	B42-c-Raf1 B42Mxi1	TetOp-URA3		Ls2
LexA-RasV12	B42-c-Raf1 B42-Cdc25	LexOp-LacZ		Ls1
TetR-RasA15	B42-c-Raf1 B42-Cdc25	TetOp-URA3		Ls2

Figure 2

FIG. 3A

Cell	LacZ Output	β-Galactosidase Activity
1		22.6 ± 3.3
2		7.4 ± 1.0

FIG. 3B

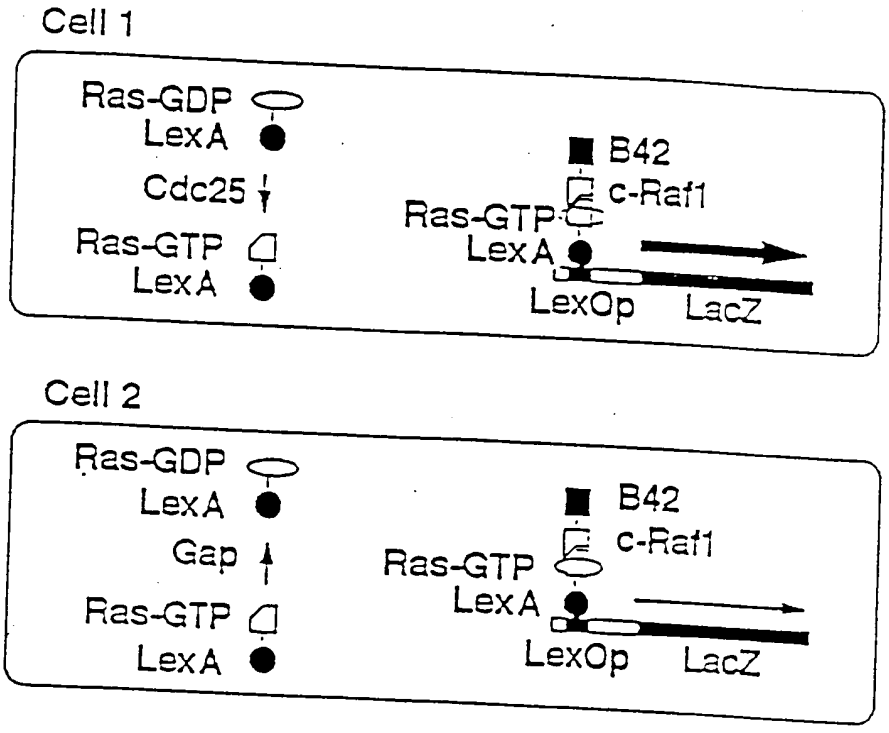

FIG. 3C

Input Values		LacZ Output
1 (B42-c-Raf1)	0 (GAP)	0
1 (B42-c-Raf1)	1 (Cdc25)	1

Logical Not

α factor = 0

TGF-β = 1

Input α-factor, output TGF-β

Input TGF-β , output α factor

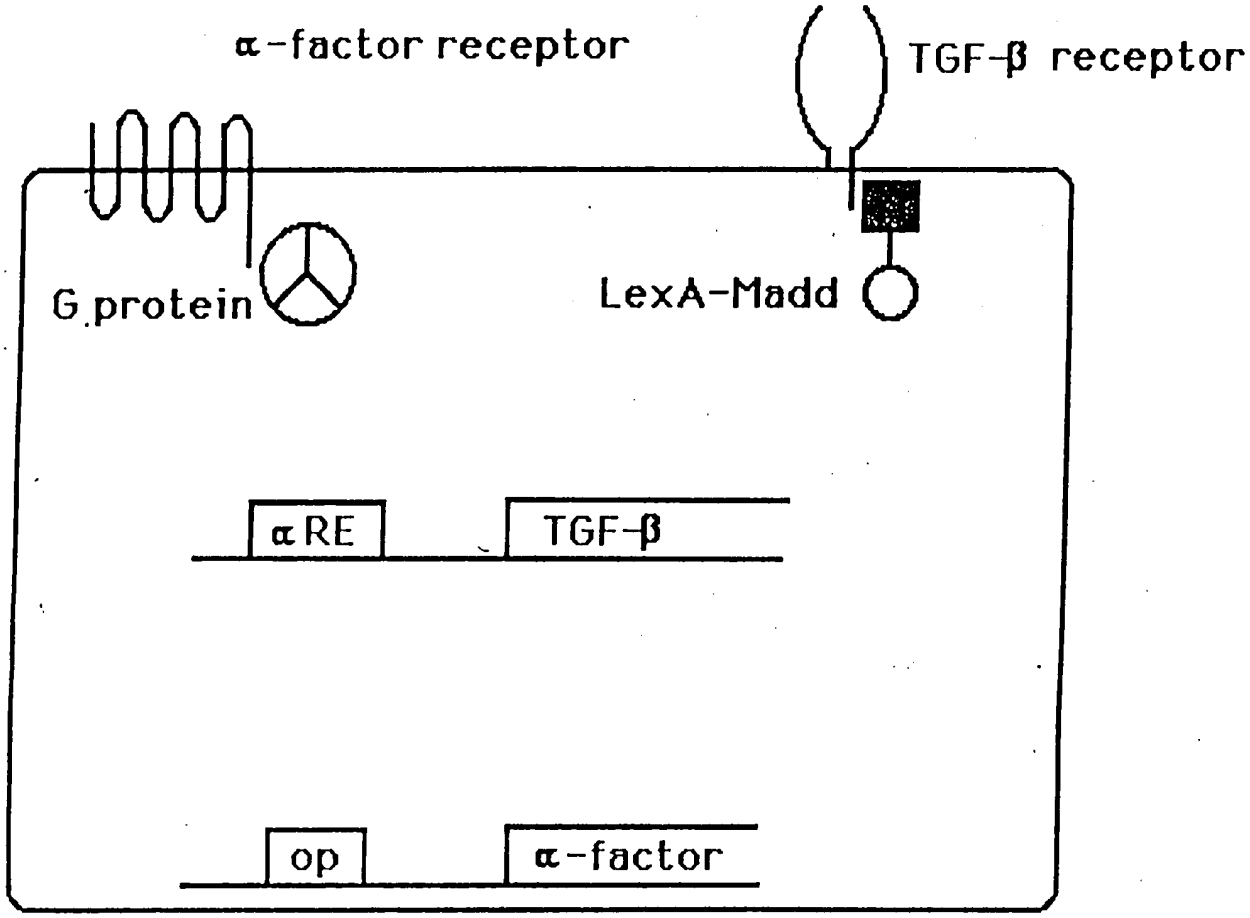

FIG. 4

Four input output channels

(variety of possible logical operations)

Inputs	Receptors
α factor	α factor R
TGF-β	TGF-β R
Delta	Notch
Bradykinin	Bradykinin R

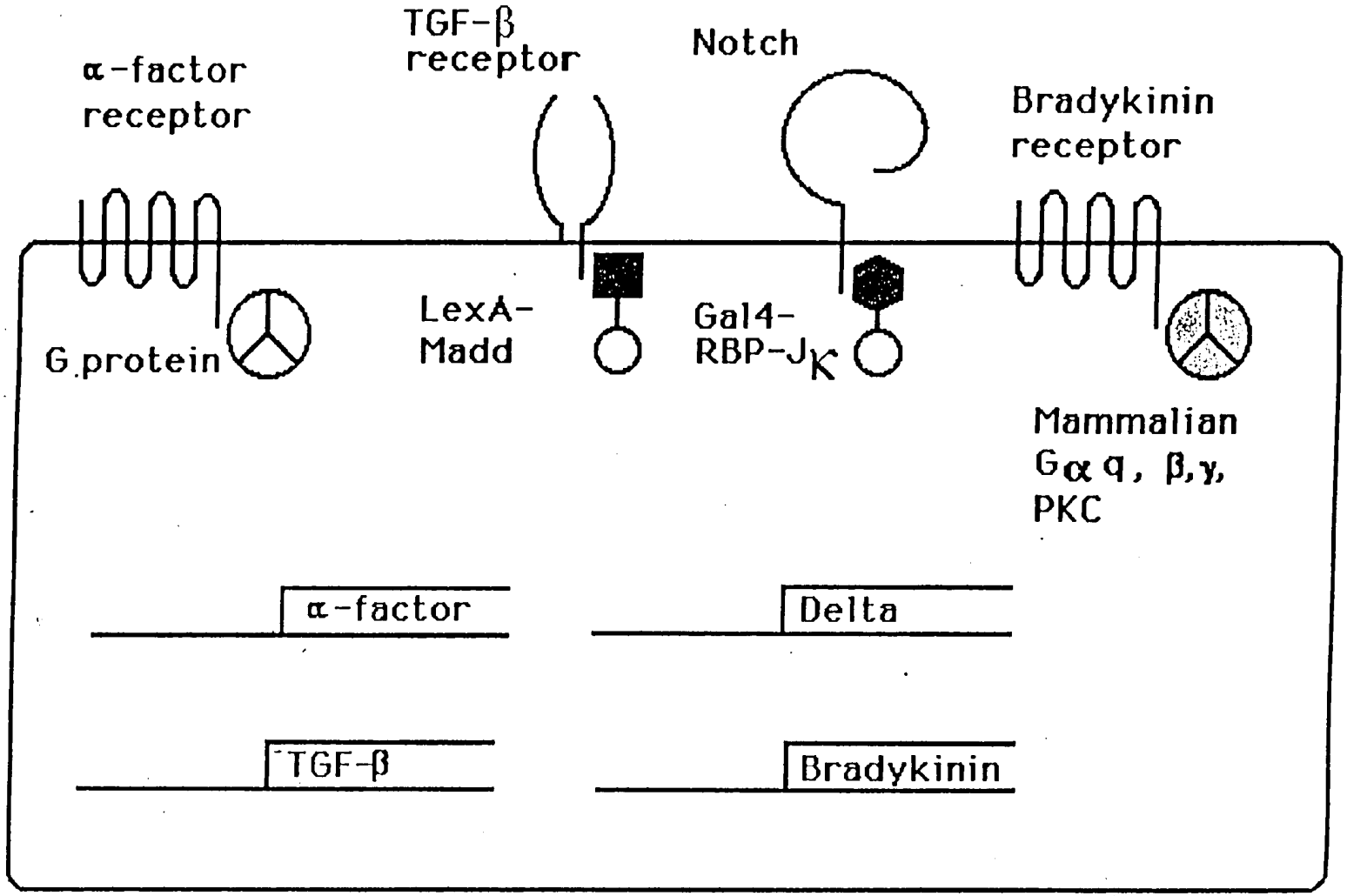

FIG. 5

Fluorescence resonance energy transfer "transistor"

No green light input
HIV protease linker intact
Blue light input
Green light output

Green light input
Linker cleaved
Blue light input
No green fluorescence

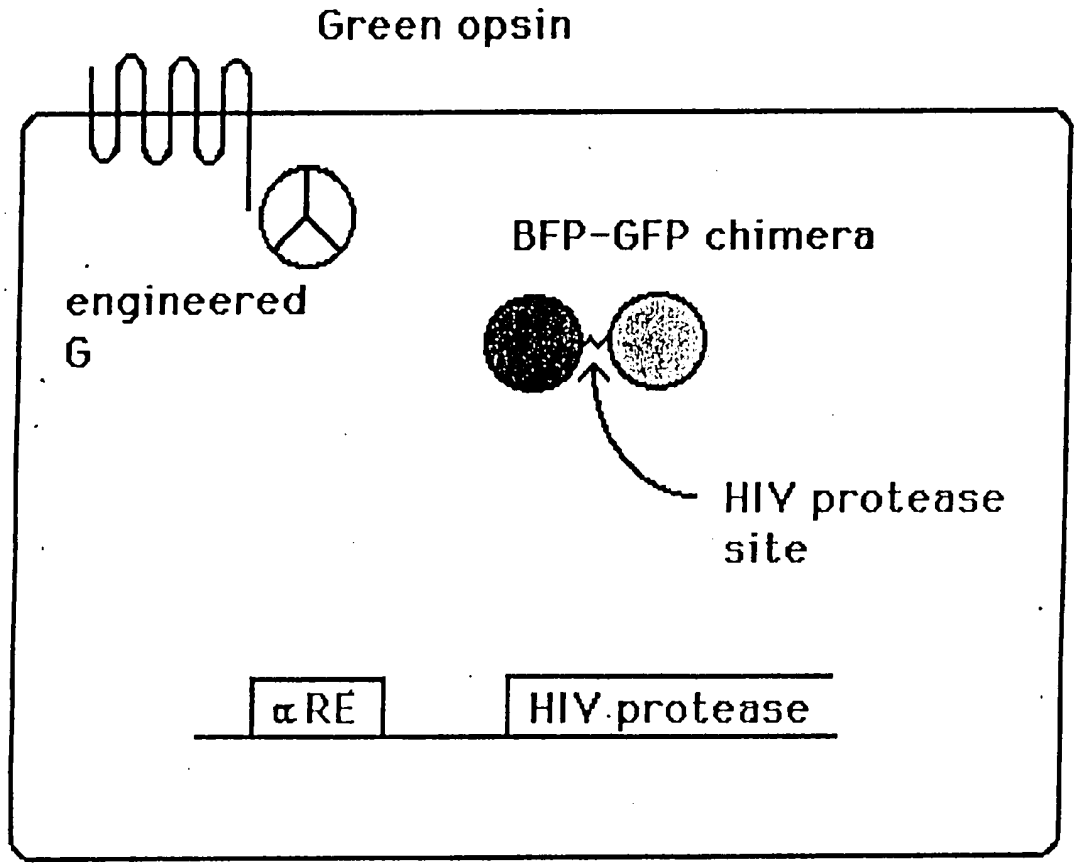

FIG. 6